

**From:** Sanga, Ravi

**Sent:** Wednesday, August 04, 2021 9:01 AM

**To:** 'Greg Brunkhorst' <[gbrunkhorst@anchorqea.com](mailto:gbrunkhorst@anchorqea.com)>

**Cc:** [florer.j@portseattle.org](mailto:florer.j@portseattle.org); [debra.williston@kingcounty.gov](mailto:debra.williston@kingcounty.gov); [jeff.stern@kingcounty.gov](mailto:jeff.stern@kingcounty.gov); [pete.rude@seattle.gov](mailto:pete.rude@seattle.gov); [allison.crowley@seattle.gov](mailto:allison.crowley@seattle.gov); Merv Coover <[merv.coover@erm.com](mailto:merv.coover@erm.com)>; [dberlin@anchorqea.com](mailto:dberlin@anchorqea.com); Brick Spangler <[Spangler.B@portseattle.org](mailto:Spangler.B@portseattle.org)>; Hans Adomeit <[hadomeit@anchorqea.com](mailto:hadomeit@anchorqea.com)>; Blocker, Shawn <[Blocker.Shawn@epa.gov](mailto:Blocker.Shawn@epa.gov)>; Gardiner, William W CIV USARMY CENWS (USA) <[William.W.Gardiner@usace.army.mil](mailto:William.W.Gardiner@usace.army.mil)>; Allen, Elizabeth <[allen.elizabeth@epa.gov](mailto:allen.elizabeth@epa.gov)>; [glen.stamant@muckleshoot.nsn.us](mailto:glen.stamant@muckleshoot.nsn.us); [glen.stamant@muckleshoot.nsn.us](mailto:glen.stamant@muckleshoot.nsn.us); [aosullivan@suquamish.nsn.us](mailto:aosullivan@suquamish.nsn.us); [dtaylor@suquamish.nsn.us](mailto:dtaylor@suquamish.nsn.us); Lynch, Kira <[lynch.kira@epa.gov](mailto:lynch.kira@epa.gov)>; Cerise, Kathy <[Cerise.Kathryn@epa.gov](mailto:Cerise.Kathryn@epa.gov)>; Hoffman, Erika <[Hoffman.Erika@epa.gov](mailto:Hoffman.Erika@epa.gov)>

**Subject:** RE: Final - East Waterway AB Memo

Greg -- EPA has reviewed the Final clean East Waterway Anthropogenic Background Memorandum. All comments have been addressed and EPA is hereby approving the Final Anthropogenic Background Memorandum. This document will be part of the East Waterway Administrative Record that will be available during the public comment period for the upcoming release of the East Waterway Proposed Plan.

EPA appreciates the cooperation and effort spent, by the EWG, in working closely with EPA R10 and the Muckleshoot and Suquamish Tribes, to develop the approach for calculating EW Anthropogenic Background. Should you have any questions. Please feel free to contact me.

Regards,

Ravi

**From:** Greg Brunkhorst <[gbrunkhorst@anchorqea.com](mailto:gbrunkhorst@anchorqea.com)>

**Sent:** Monday, August 02, 2021 7:40 AM

**To:** Sanga, Ravi <[Sanga.Ravi@epa.gov](mailto:Sanga.Ravi@epa.gov)>

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**Subject:** RE: Final - East Waterway AB Memo

Ravi, attached is the final clean memo with the agreed language.

Thank you,  
Greg

**Greg Brunkhorst, PE**

ANCHOR QEA, LLC  
1119 Pacific Avenue, Suite 1600  
Tacoma, WA 98402

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**From:** Greg Brunkhorst

**Sent:** Wednesday, July 28, 2021 1:12 PM

**To:** Sanga, Ravi <[Sanga.Ravi@epa.gov](mailto:Sanga.Ravi@epa.gov)>

**Cc:** Joanna Florer <[florer.j@portseattle.org](mailto:florer.j@portseattle.org)>; Debra Williston - Work <[debra.williston@kingcounty.gov](mailto:debra.williston@kingcounty.gov)>;

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<[allen.elizabeth@epa.gov](mailto:allen.elizabeth@epa.gov)>

**Subject:** RE: Final - East Waterway AB Memo

EWG has agreed to the language below. We will finalize the memo.

## Greg Brunkhorst, PE

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**From:** Sanga, Ravi <[Sanga.Ravi@epa.gov](mailto:Sanga.Ravi@epa.gov)>

**Sent:** Wednesday, July 28, 2021 10:00 AM

**To:** Greg Brunkhorst <[gbrunkhorst@anchoragea.com](mailto:gbrunkhorst@anchoragea.com)>

**Cc:** Joanna Florer <[florer.j@portseattle.org](mailto:florer.j@portseattle.org)>; Debra Williston - Work <[debra.williston@kingcounty.gov](mailto:debra.williston@kingcounty.gov)>;

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<[allison.crowley@seattle.gov](mailto:allison.crowley@seattle.gov)>; Merv Coover <[merv.coover@erm.com](mailto:merv.coover@erm.com)>; Dan Berlin

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USARMY CENWS (USA) <[William.W.Gardiner@usace.army.mil](mailto:William.W.Gardiner@usace.army.mil)>; Allen, Elizabeth

<[allen.elizabeth@epa.gov](mailto:allen.elizabeth@epa.gov)>

**Subject:** RE: Final - East Waterway AB Memo

**CAUTION – EXTERNAL EMAIL:** This email originated from outside of Anchor QEA. Please exercise caution with links and attachments.

Greg Thanks for the EWGs reply. All changes are acceptable to EPA except the way arsenic sources are portrayed.

Therefore, regarding Section 4.4 on page 17, it needs to read,

"Arsenic in Green River suspended solids likely comes from natural and anthropogenic sources such as historical pesticide use."

Let me know if this is acceptable to the EWG.

Thanks

Ravi

**From:** Greg Brunkhorst <[gbrunkhorst@anchoragea.com](mailto:gbrunkhorst@anchoragea.com)>

**Sent:** Tuesday, July 27, 2021 2:23 PM

**To:** Sanga, Ravi <[Sanga.Ravi@epa.gov](mailto:Sanga.Ravi@epa.gov)>

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**Subject:** RE: Final - East Waterway AB Memo

Ravi, we met with EWG today and propose the **edits shown in red** below. If EPA agrees to the edits, we will package up the final memo.

Thanks,  
Greg

## Greg Brunkhorst, PE

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**From:** Sanga, Ravi <[Sanga.Ravi@epa.gov](mailto:Sanga.Ravi@epa.gov)>

**Sent:** Wednesday, July 21, 2021 1:37 PM

**To:** Greg Brunkhorst <[gbrunkhorst@anchoragea.com](mailto:gbrunkhorst@anchoragea.com)>

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**Subject:** RE: Final - East Waterway AB Memo

**CAUTION – EXTERNAL EMAIL:** This email originated from outside of Anchor QEA. Please exercise caution with links and attachments.

Greg -- EPA has reviewed the latest draft sent Friday July 16<sup>th</sup> and there are still some remaining issues. See below.

Section 4, 2<sup>nd</sup> bullet: Delete the reference to “arsenic biogeochemical processes.”

Deleted per comment.

Section 4.4, p. 17. Either delete the sentence in the first paragraph that reads “The arsenic in Green River suspended solids are most likely attributable to contributions from natural (geogenic) arsenic sources” or add additional text that arsenic concentrations may also be attributable to some degree by anthropogenic sources, such as the use of arsenic as a pesticide.

EWG suggests that the last two sentences of the first paragraph are replaced with the following:

Arsenic in Green River suspended solids likely comes from natural (geogenic) sources [footnote], and anthropogenic sources such as the former Tacoma Asarco smelter plume deposition and potentially historical pesticide use (e.g., <https://www.doh.wa.gov/communityandenvironment/contaminants/arsenic>).

[footnote] Arsenic mineralization has been documented in several areas within the Green River upstream of the EW (Royal Reward Mine [<https://www.mindat.org/loc-4215.html>]).

The remaining text in the second paragraph referring to concentrations in the LDW and post-remedial concentrations in LDW and West Waterway sites and the associated table needs to be moved to either the uncertainty discussion, or Section 4.6 where the effect of particle size on relative concentrations is discussed.

Moved to uncertainty Section 5.8 per comment.

If the EWG agrees to EPA comments, send a new redline version incorporating EPAs changes. If a meeting is needed. Let me know.

Thanks

Ravi

**From:** Greg Brunkhorst <[gbrunkhorst@anchoragea.com](mailto:gbrunkhorst@anchoragea.com)>

**Sent:** Friday, July 16, 2021 8:18 AM

**To:** Sanga, Ravi <[Sanga.Ravi@epa.gov](mailto:Sanga.Ravi@epa.gov)>

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Hans Adomeit <[hadomeit@anchoragea.com](mailto:hadomeit@anchoragea.com)>

**Subject:** Final - East Waterway AB Memo

Ravi, attached is the revised Anthropogenic Background Memo based on final EPA comments received July 1 and discussed July 8. Attached is the following:

- Complete Final AB Memo dated July 2021
- PDF of the last round of redlines text for tracking
- Response to comments emailed July 1 for tracking

Let us know if this is accepted as final by EPA.

I have not cc'd your team – please forward on to the right group.

Thank you again for the combined efforts in completing this work.

Greg

**Greg Brunkhorst, PE**

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**SR**

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